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CHRISTOPHER L. BERNARD
DOUGHTERTY, CLEMENTS & HOFER
TWO FAIRVIEW CENTER
6230 FAIRVIEW ROAD, SUITE 400
CHARLOTTE, NC 28210

EXAMINER	
JOLLEY, KIRSTEN	
ART UNIT	PAPER NUMBER
1762	14

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Please find below and/or attached an Office communication concerning this application or proceeding.

AS-14

Office Action Summary	Application No.	Applicant(s)	
	09/682,829	POTYRAILO ET AL.	
	Examiner	Art Unit	
	Kirsten Crockford Jolley	1762	

-- The MAILING DATE of this communication app ars on the cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 June 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,10,17-31,33,35-39,42-47 and 49-51* is/are pending in the application.

4a) Of the above claim(s) *27-31,33,35,43,45,47 and 49-51* is/are withdrawn from consideration.

5)☒ Claim(s) *26* is/are allowed.

6)☒ Claim(s) *1-5,10,17-19, 21-25, 36-39, 42, 44, and 46* is/are rejected.

7)☒ Claim(s) *20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 17, 2003 has been entered.

2. In future responses or amendments, Applicant should include status identifiers for *all* claims, including withdrawn and cancelled claims. It is noted that status identifiers are missing in the Amendment filed June 17, 2003 for claims 27-33, 35, 43, 45, 47, and 49-51.

3. It is noted that the claim objection set forth in the prior Office action has been withdrawn in response to Applicant's amendments to claim 36.

Information Disclosure Statement

4. The Examiner notes that, in the information disclosure statement filed December 12, 2001, copies of the Freud reference, Dickinson reference, Ballantine reference, Smith reference, *Organic Coatings* reference, *Surface Coatings Vol 2* reference, and *Coating technology handbook* reference were not located in the file, therefore the information referred to therein has not been considered and the references have been crossed through on the submitted PTO-1449.

If Applicant submits copies of these references, the information therein will be considered by the Examiner.

Examiner's Suggestions

5. In claim 36, line 6, it appears that the word --to-- should be added after "simultaneously".

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-5, 10, 36-39, 46, and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Schultz et al. (US 6,004,617).

With respect to claim 36, Schultz et al. discloses a method for using a combinatorial coating library comprising: selectively applying at least one of a plurality of coating materials suitable for forming at least one coating layer to a surface of a substrate (col. 4, lines 7-37); selectively applying at least one of a plurality of curing environments simultaneously to each of a plurality of regions associated with the at least one coating layer (col. 26, lines 46-50); wherein the combinatorial coating library comprises a predetermined combination of at least one of the plurality of materials and least one of the plurality of curing environments associated with each of the plurality of regions. Reaction of the applied coating materials meets the limitation of curing the coating materials. Schultz et al. teaches reacting the components deposited on the

predefined regions of the substrate using a thin-film resistive element, which is an elongate heating element operably positionable adjacent to the one or more substrates, wherein the heating element has a variable heat distribution characteristic along its length (col. 27, lines 29-40); Schultz et al. teaches that the temperature of the predefined regions on the substrate can be regulated by varying the power input to a given strip.

Applicant argues that Schultz states in claim 1 "(e) reacting said components on said first single substrate under a ***first set of reaction conditions*** and said components on said second single substrate under a ***second set of reaction conditions*** to form at least two different arrays of at least two different materials," and therefore the reaction conditions are clearly different on each substrate (region) and hence are not duplicated. The Examiner notes that the first and second sets of reaction conditions claimed in step (e) of claim 1 of Schultz are applied to separate substrates, however the first reaction conditions are simultaneously applied to *both first and second regions* on the first substrate and the second reaction conditions are simultaneously applied to *both first and second regions* on the second substrate. Therefore, Schultz meets Applicant's claim limitation of applying at least one curing environment simultaneously to each of a plurality of regions. Applicant appears to be considering each "substrate" of Schultz's claim 1 as separate claimed "regions"; however, it is the Examiner's position that the term "region" in claim 1 of Schultz corresponds to the claimed term "region."

Further, Schultz et al. teaches an embodiment in col. 32, lines 35-66, of reacting the components on predefined regions of each substrate suing the same set of reaction conditions. Also, it is noted that in Schultz et al.'s Examples a substrate comprises numerous predefined regions having components coated thereon are simultaneously reacted using the same reaction

conditions; for example in Example A discussed in columns 35-36 of Schultz et al. a single substrate comprising components coated on 16 predefined regions is placed in a furnace (col. 36, lines 21-24). Applicant argues that "in the Applicant's invention the curing environments (reaction conditions) of each of the plurality of regions have the same set of reaction (curing) conditions." This is necessarily taught by the Schultz et al. reference as discussed above.

With respect to the apparatus/system limitations of claim 1, Schultz et al. discloses: a plurality of coating materials for forming at least one coating layer (col. 13, lines 47-49); a controller for controlling "small, precise metered amounts" of the coating materials (col. 16, lines 40-42 and section IV in col. 16-23); a mixer for mixing the plurality of coating materials (col. 26, lines 43-45); one or more substrates comprising a plurality of predefined regions for receiving the plurality of coatings; a coating system for delivering the plurality of materials to the substrate either incrementally or continuously (col. 16-23); a spatial mask (discussed in col. 16-23 and illustrated in Figure 2); a curing system for providing a plurality of curing environments (col. 26-27); a thermal gradient curing element having a constant or variable temperature distribution along its length, as discussed above; and a testing device (col. 29-31). As discussed above, the combinatorial library of Schultz et al. comprises a predetermined combination of at least one of the plurality of coating materials and at least one of the plurality of curing environments associated with each of the plurality of predefined regions.

With respect to claims 2 and 37, Schultz et al. discloses in Example A (col. 35-36) a single substrate comprising components coated on 16 predefined regions that is placed in a furnace for curing; this meets the limitation of simultaneously applying the same curing environment to each of the plurality of regions.

As to claims 3 and 38, Schultz et al. teaches "the reaction conditions at different reaction regions can be controlled independently" (col. 10, lines 57-59), "the predefined regions on a substrate can be subjected to different reaction temperatures by independently heating the predefined regions using a thin film resistive element" (col. 27, lines 30-32), and "reactants can be simultaneously reacted" (col. 28, lines 63-65). Subjecting the predefined regions to different reaction conditions, such as different temperatures, meets Applicant's limitation of selectively applying a substantially different curing environment to each of the plurality of regions.

With respect to claims 4 and 39, Schultz et al. teaches using polymeric materials at col. 28, lines 17-25.

As to claim 5, Schultz et al. teaches coating by spraying, spin coating, dipping at col. 18, lines 40-46.

As to claim 10, Schultz et al.'s thin-film resistive element may be deposited in a straight line or in a pattern (col. 27, line 29 to col. 28, line 4). (It is noted that Merriam-Webster's Collegiate Dictionary, 10th Edition, discloses under the definition for "geometric" that an exemplary geometric shape is a straight line.)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz et al.

With respect to claim 44, Schultz et al. is applied for its method for creating a combinatorial coating library as discussed in section 7 above. Schultz et al. lacks the specific disclosure of a dip coating apparatus used for coating comprising a plurality of substrate holders and a plurality of wells, and involving immersing a plurality of substrates held by substrate holders in a coating material disposed within the wells. It is noted that Schultz et al. teaches that the substrate may be coated using a number of different mechanical techniques, including dipping (using masking to prevent coating material from coating unwanted areas - see col. 18, lines 40-46). Additionally, Schultz et al. teaches that substantially the same reaction components at substantially identical concentrations are applied to predefined regions on both first and second substrates (col. 32, lines 15-34), therefore Schultz et al. teaches a desire to coat a plurality of components.

The Examiner notes that a dip coating method would inherently require a container, or well, for holding a coating material therein, a substrate holder to hold the substrate during dipping because either a machine or a hand is required to lower the substrate into coating solution and lift it back out, and a step of immersing the substrate into the container of coating material. (It is noted that Merriam-Webster's Collegiate Dictionary, 10th Edition, defines "well" as "a source from which something may be drawn as needed.") It is the Examiner's position that it would have been obvious for one having ordinary skill in the art to have used a *plurality* of substrate holders and a *plurality* of containers/wells comprising coating material therein to perform the dip coating step of Schultz et al. on a plurality of substrates because Schultz et al.

teaches a desire to coat two substrates and simultaneous dipping of both substrates would increase the efficiency of Schultz et al.'s coating step.

As to claim 46, Schultz et al. teaches forming a multi-layer coating in col. 32, lines 15-34. Schultz et al. also teaches a plurality of coating and curing sequences as discussed above and in col. 16-27.

10. Claims 17-19, 21-22, 25, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz et al. as applied to claim 36 above, and further in view of Courtney et al. (US 4,390,615).

With respect to independent claim 17, Schultz et al. discloses a system for creating a combinatorial coating library, as discussed above, which includes: a coating system; a curing system operative to apply at least one of a plurality of curing environments simultaneously to each of a plurality of regions, wherein the curing environments include thermal radiation, microwave radiation, laser radiation, among others (col. 26, lines 27-39 and col. 27, line 25); and a thermal gradient heating element as discussed above in section 7; wherein the combinatorial library comprises a predetermined combination of at least one of the plurality of coating materials and at least one of the plurality of curing environments associated with each of the plurality of predefined regions.

As to claims 17 and 42, Schultz et al. discloses the use of masks to aid in depositing coating material on only certain predetermined regions of the substrate (col. 18-21), however Schultz et al. lacks a teaching of using masks to aid in providing particular reaction conditions to only certain predetermined regions of the substrate. It is noted that Schultz et al. teaches that

various target regions on a substrate can be exposed to different heat histories (col. 26, lines 22-32). Also, Schultz et al. teaches heating to cause reaction by various techniques such as thermal, infrared and microwave heating, among others (col. 26, lines 30-37). It is the Examiner's position that one having ordinary skill in the art would have been motivated to look to the prior art for conventional means to cure/react only particular regions of a coated substrate while leaving the remainder of the regions where curing is not desired un-cured.

It is well known in the coating art to use spatial masks to prevent particular regions of a coated substrate from being irradiated. Courtney et al. is cited for its teachings of using a mask to prevent radiation from curing its coating in unexposed areas (col. 4, lines 19-28). It would have been obvious for one having ordinary skill in the art, upon seeing the reference of Courtney et al., to have used a spatial mask to initiate reactions only on certain predetermined regions of the substrate in the method of Schultz et al. because Schultz et al. teaches the desire to expose only certain target regions to the reaction conditions and is not limited as to the means to accomplish selective curing, and because Schultz et al. teaches various irradiation techniques as means to react the components on the surface. The radiation transmission inherently varies along the length of a mask.

As to claim 18, Schultz et al. teaches coating by spraying, spin coating, dipping at col. 18, lines 40-46.

As to claim 19, the claimed dip-coating limitations are rejected for the same reasons discussed above with respect to claim 44.

As to claims 21 and 22, the claims are rejected for the same reasons discussed above with respect to claims 2 and 37, and 3 and 38, respectively.

As to claim 25, the elongate heating element of Schultz et al. is a thin-film resistive element in thermal communication with heating source (power supply) and is operably positionable adjacent to the plurality of substrates and has a modulated heat trasmissibility characteristic (col. 27, line 29 to col. 28, line 4).

11. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz et al. as applied to claim 17 above, and further in view of Poullos et al. (US 5,200,230).

Schultz et al. lacks the disclosure of a curing/reactive environment comprising a scanning mirror system having a mirrored surface positionable relative to an incoming radiation beam, wherein the mirrored surface is positionable to direct the incoming radiation beam to a selected one of the plurality of regions associated with the coating layer. It is noted however that Schultz et al. teaches in col. 27, lines 23-28, using laser thermolysis where bursts of energy of a predetermined duration and intensity are delivered to target regions on the substrate. One skilled in the art would have been motivated to look to the prior art in the area of lasers to determine a specific system capable of delivering bursts of laser energy to targeted regions on a substrate for use with the system of Schultz et al. Poullos et al. discloses a method of targeting laser radiation on a particular surface of a coating to fuse/bake the coating (col. 1, lines 43-49). The laser apparatus of Poullos et al. makes use of scanning mirrors and waveguides to position the laser at the desired surface of the coating (col. 5-6). It would have been obvious for one having ordinary skill in the art to have used the laser apparatus of Poullos et al. to perform the laser thermolysis curing of Schultz et al. because Schultz et al. broadly discloses using laser thermolysis but does not provide details of the apparatus used and is not limiting as to the apparatus that may be used,

and because the apparatus of Poullos et al. provides curing in small, specific regions as desired in the process of Schultz et al.

Allowable Subject Matter

12. Upon further consideration, claim 26 is allowable over the prior art. The closest prior art of Schultz et al. discussed above, which teaches a system for creating a combinatorial coating library, does not teach or fairly suggest that its substrate comprises an acoustic wave transducer having a first acoustic wave parameter and a second acoustic wave parameter, wherein the first acoustic waver parameter corresponds to a first amount of coating or viscoelastic property of a coating layer on the substrate, and the second acoustic wave parameter corresponding to a second amount of coating or viscoelastic property of the coating layer on the substrate.

13. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 20 is allowable for the same reasons discussed with respect to claim 26 above.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten Crockford Jolley whose telephone number is 703-306-5461. The examiner can normally be reached on Monday to Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on 703-308-2333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1193.

Kirsten C. Jolley
Patent Examiner
Technology Center 1700

kcj